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3446 PCT

WIE CLAIM

Patent Claims

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1. A shield cleaning system, operating solely by spraying with washing fluid, for shields of an automobile, in particular for shields of automobile lights, with a washing arm movable over and at a distance from the shield by a motor and with a washing nozzle which is arranged on the washing arm and which is provided for spraying washing fluid onto the shield, wherein the washing nozzle (12-14, 25, 38, 50, 54, 63) is ~~designed~~ ^{Sormek} for spraying a part region of the shield (2, 34, 49, 55, 65) and can be moved by the washing arm (6, 37, 48, 53) over that region of the shield (2, 34, 49, 55, 65) which is to be cleaned.

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2. The shield cleaning system as claimed in claim 1, wherein the washing nozzle (12-14, 25, 38, 50, 54, 63) is designed as a fluidic nozzle with a washing fluid jet oscillating essentially transversely to the direction of movement of the washing arm (6, 37, 48, 53).

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3. The shield cleaning system as claimed in claim 1 ^{or 2}, wherein the washing arm (6) is of tubular ~~design~~ ^{Sormek} for receiving a washing fluid duct (8) leading to a plurality of washing nozzles (12-14) and has a connection (9) for a washing fluid line (10).

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4. The shield cleaning system as claimed in claim 3, wherein the washing fluid duct (8) has a tapering inner contour, as seen from the connection (9) of the washing fluid line (10).

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5. The shield cleaning system as claimed in ^{claim 3} ~~at least one of the preceding claims~~, wherein a nonreturn valve (11) is arranged in the washing fluid duct (8).

6. The shield cleaning system as claimed in ^{claim 3} ~~at least one of the preceding claims~~, wherein a heating

element (8) resistance wire (15) is arranged in the washing fluid duct (8) and/or at the washing nozzles (12-14).

7. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein the washing arm (6) is mounted pivotably about a pivot axis (7).

8. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein there are means (yokes 46, 47, 56) for adjusting the distance of the washing nozzle (50, 54) from the shield (49, 55) during the movement of the washing nozzle (50, 54).

9. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein the washing arm (48, 53) has a yoke (46, 47, 56) mounted pivotably in a lateral region of the shield (49, 55) and at least partially surrounding the shield (49, 55) in the basic position.

10. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein the washing arm (48) has a yoke (46, 47) mounted on two opposite sides of the shield (49).

11. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein the washing arm (48) has two yokes (46, 47) running parallel and the washing nozzle (50) is mounted pivotably relative to each of the yokes (46, 47).

12. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein the washing nozzle (54) is inclined transversely to its direction of movement.

13. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein the washing arm (37) has a push rod (39) mounted so as to be longitudinally displaceable and shaped according to the contour of the shield (34).

14. The shield cleaning system as claimed in ^{claim 1} at least one of the preceding claims, wherein, in a basic position, the washing nozzles (12-14, 38) are countersunk in a recess (5, 36) of an automobile

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component (fender 1, body panel 33) adjacent to the shield (2, 34).

15. The shield cleaning system as claimed in claim 14, wherein the washing arm (37) has a cover (45) closing the recess (36) in the basic position.

16. The shield cleaning system as claimed in ~~at least one of the preceding claims~~, wherein the washing arm (6, 37, 48, 53) is produced from plastic by the injection molding method.

17. The shield cleaning system as claimed in ~~at least one of the preceding claims~~, wherein a guide (41) of the push rod (39) or a mounting of the washing arm is produced in one piece with a housing (44) of the automobile light (35).

18. The shield cleaning system as claimed in ~~at least one of the preceding claims~~, wherein the washing arm is designed as a component (60) shaped according to the contour of a body element (58) and is arranged so as to be movable out of said body element.

19. The shield cleaning system as claimed in claim 18, wherein the body element (58) is a fender of an automobile.

20. The shield cleaning system as claimed in claim 18, wherein the washing nozzle (63) is arranged on the top side of the component (60).

21. The shield cleaning system as claimed in claim 18, wherein the washing nozzle (63) is arranged on the underside of the component (60).

22. The shield cleaning system as claimed in claim 18, wherein the component (60) is ~~designed~~ ^{formed} as a washing nozzle (63).

23. The shield cleaning system as claimed in claim 18, wherein the component (60) is pivotable about a joint (62) running transversely to the longitudinal axis of the automobile.

24. The shield cleaning system as claimed in claim 18, wherein the component (60) is arranged so as to be movable out of the contour of the body element (58) in parallel by means of the motor (61).

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claim 1

claim 13

claim 1

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